SECTION 1
PURPOSE AND NEED

1.0 INTRODUCTION

This Environmental Assessment (EA) has been prepared to assist the Federal Aviation Administration (FAA) in evaluating the potential environmental effects resulting from a proposed runway extension and associated actions as well as other proposed improvements included in the Five-Year Capital Improvement Program (CIP) at Easton / Newnam Field Airport (ESN) in Easton, Maryland.

This EA has been prepared in accordance with the National Environmental Policy Act of 1969 [(NEPA); 42 United States Code (USC) 4321 et seq.]; the Council on Environmental Quality (CEQ) implementing regulations; [40 Code of Federal Regulations (CFR) 1500-1508]; FAA Order 1050.1E, Change 1: *Environmental Impacts: Policies and Procedures*, and FAA Order 5050.4B: *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions* as supplemented by FAA's *Environmental Desk Reference for Airport Actions* (October 2007). The Maryland Environmental Policy Act (Annotated Code of Maryland, Natural Resource Volume, 1-301 to 1-305) was also utilized to identify state environmental policy requirements.

1.0.1 PROJECT LOCATION

ESN currently occupies a 615-acre site in central Talbot County, Maryland (see **Exhibit 1.0-1**). The Airport has a listed elevation of 72 feet above mean sea level (MSL) and is located approximately two miles north of the center of the Town of Easton, the Talbot County seat. Easton is located 59 miles southeast of Baltimore, Maryland and 73 miles east of Washington DC. ESN is owned and operated by Talbot County.

1.0.2 AIRPORT HISTORY

The Easton Airport was originally constructed in 1941 on property provided by the local community as a military training facility for transport aircraft. An agreement with the military called for government use of the airfield during World War II with the subsequent return of the facility to the local municipality. Following World War II, the Airport was first owned by the Town of Easton, then jointly by both Talbot County and the Town. In 1993 the ownership was transferred to the County, and the name was changed in honor of the late William Newnam, who had managed the facility for over 40 years. Since its initial construction, the basic airport configuration has not been significantly modified. However, a modern terminal building was opened in 1987 which includes a restaurant, car rental service, a Fixed Based Operator (FBO) facility, flight school, pilot shop, shuttle service, and administrative offices. In 1989 the Airport's primary Runway 4-22 was extended to 5,500 feet and in 2006 the Southwest Apron was constructed and Runway 4-22 was rehabilitated. The entire airfield received lighted signs in 2008.

ESN is classified as a General Aviation (GA) airport in the National Plan of Integrated Airport Systems (NPIAS). The Maryland Aviation System Plan (2008) recommends the role of General for the Airport. ESN serves a variety of aviation needs including, but not limited to, flight school/flight training, private

recreation operations, air cargo, avionics, flight charter service, aircraft rentals and sales, military, and emergency transport services.

1.1 PRIOR PLANNING STUDIES

1.1.1 RUNWAY SAFETY AREA STUDY

The County conducted a comprehensive Runway Safety Area (RSA) Study in accordance with FAA Order 5200.8, *Runway Safety Area Program* in December 2003. This Study presented a series of alternatives that would allow the Airport to achieve RSA dimensions in compliance with FAA design guidelines (per the current standards at that time). Given the location of US Route 50 and Airport Road in relation to Runway 22, a standard RSA for Runway 4-22 within its then current configuration was not possible. Therefore, the only practicable alternative to providing a standard RSA was to reduce the length of Runway 4-22 on the northeast end from 5,500 feet to 4,300 feet. However, this reduction in length of the primary runway would not have accommodated the existing and future demand at ESN. As a result, a Master Plan Update (2006) was then prepared (see **Section 1.1.2**) that determined that Runway 15-33 would become the primary runway and would need to be extended up to a length between 6,200 feet and 6,900 feet from its current length of 4,003 feet. The Talbot County Council approved the recommended alternative to correct the non-standard RSA in 2003.

1.1.2 AIRPORT LAYOUT PLAN / MASTER PLAN UPDATE

In August 2006, the County completed a Master Plan Study and an Airport Layout Plan (ALP) Update, both of which were approved by the FAA, to identify the need and timing for future airport development. A primary goal of this Study was based on the decision by the Talbot County Council to convert the existing crosswind Runway 15-33 to the primary runway in order to compensate for the non-standard condition of the RSA on Runway 22 (see **Section 1.1.1**).

1.1.3 FORECASTS

Aviation forecasts establish the basis for determining and planning the infrastructure and facility requirements necessary to serve the existing and future needs at an airport. Since ESN was a non-towered Airport during the time of the Master Plan Update, operational data would have typically been collected by FBO, observation based estimates, and periodic traffic counts performed by the Maryland Aviation Administration (MAA). For the Master Plan Update, a forecasting effort was conducted that used FBO data, the FAA's Terminal Area Forecast (TAF), which is a nationwide forecast of aviation activity, and previous studies including the 1998 Master Plan Study and the 2003 RSA Study.

The FAA-approved forecasts prepared in early 2005 for the Master Plan indicated that ESN would experience approximately 94,040 aircraft operations in 2023. Then in July 2005, the MAA completed traffic counts which identified 160,000 operations for 2005. The latest FAA 5010 Master Record form indicates that the Airport experiences approximately 50,000 annual operations. In September 2007, an Airport Traffic Control Tower (ATCT) became operational at ESN. Actual recorded counts from the new

ATCT for 2008 totaled 51,055. This total only includes traffic from 6:00 AM to 10:00 PM when the ATCT is in operation. In addition, in 2008, Runway 4-22 was closed for approximately 80 days, and Runway 15-33 was closed 5 days for construction and/or maintenance activities. As part of the Noise Analysis for this EA, the forecasts were re-analyzed.

1.1.4 RUNWAY 4-22 EXTENSION ANALYSIS

As mentioned in **Section 1.1.2**, a Master Plan Update was completed in August 2006. The critical recommendation of this Update was to convert Runway 15-33 to the Airport's primary runway and to extend it to the length necessary to serve the Airport's design aircraft. This recommendation was based on the RSA Study completed by Delta Airport Consultants in 2003. As a result of the Master Plan Update, a Scope of Work was prepared by URS for an EA for the Five-Year CIP, which included the extension and conversion of Runway 15-33 to the primary runway at ESN. However, it was then discovered that the Eastern Shore Land Conservancy, along with Maryland Environmental Trust as co-grantee, hold a conservation easement on the property previously owned by Mary and Charlotte Fletcher. This property was designated for acquisition on the ALP, which was approved by the FAA in August 2006 in order to accommodate the extension of Runway 15-33 to the northwest. Due to the desire to maintain this conservation easement, Talbot County decided to no longer pursue any future plans for Airport expansion onto the Fletcher property, essentially precluding any extension to Runway 15-33.

As a result, supplemental planning services were required to revisit alternatives involving an extension to Runway 4-22, which were initially evaluated in the RSA Study completed in 2003. A study entitled *Runway 4-22 Extension Analysis* was completed in 2008. Talbot County approved the recommended alternative from this analysis involving an extension of Runway 4-22 to be placed on the ALP (see **Exhibit 1.1-1**).

1.1.5 ALP UPDATE

As a result of the new *Runway 4-22 Extension Analysis* recommendation, appropriate sheets of the ALP plan set were updated in October 2008. This ALP was approved by the FAA on February 4, 2009 (see **Exhibit 1.1-1**).

As part of this ALP Update, the FAA approved the use of declared distances in order for the RSA of the extended Runway 4-22 to meet FAA design standards (see **Exhibit 1.1-2**). The use of declared distances required an approval of a Modification of Standards (MOS) from the FAA. The ALP approval (February 2009) included the approval of the MOS. As defined by FAA Advisory Circular 150/5300-13, Change 14, *Airport Design*, a RSA is "a defined surface surrounding the runway prepared or suitable for reducing the risk or damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway." The required RSA at an airport is based on the Airport Reference Code (ARC). The ARC is based on the approach category (speed) and the design group (wing span and/or tail height) of the aircraft. Per Change 14 of Advisory Circular 150/5300-13, Runway 4-22, a D-II runway, requires a RSA that is 600 feet in length prior to the landing threshold, 1,000 feet in length beyond the runway threshold, and 500 feet in

width centered on the runway centerline. With the implementation of declared distances, the current RSA for Runway 4 meets the FAA standards of 500 feet in width centered on the runway centerline, 1,000 feet in length beyond the runway threshold, and 600 feet in length prior to the landing threshold.

Declared distances involve the following:

Takeoff Run Available (TORA) – distance from beginning of ground roll to gear-up rotation point;

Takeoff Distance Available (TODA) – distance from beginning of ground roll to end of pavement;

Accelerated-Stop Distance Available (ASDA) – distance from beginning of ground roll to either the RSA or 1,000 feet from the far end of pavement (whichever is greater); and

Landing Distance Available (LDA) – distance from landing threshold to either RSA or 1,000 feet from the far end of pavement (whichever is greater).

The declared distances for existing Runway 4-22 are as follows:

RUNWAY	TORA (FT)	TODA (FT)	ASDA (FT)	LDA (FT)
4	5,175	5,500	4,775	4,775
22	5,500	5,500	5,500	5,175

Source: URS Corporation, 2009.

1.2 EXISTING AIRPORT FACILITIES IN NEED OF IMPROVEMENT

Airports are typically defined in terms of their airside, landside, and support facilities. Airside facilities consist of those areas of the airport that accommodate the movement of aircraft. Landside facilities typically refer to those facilities related to getting passengers to and from the airport. Support facilities include those facilities related to the operation and maintenance of the airport. The subsections below describe where deficiencies exist.

1.2.1 EXISTING AIRSIDE FACILITY DEFICIENCIES

The FAA requires that airports establish a critical aircraft to be used as a model on which to base their overall airport design standards. An airport's critical aircraft is defined as the most demanding aircraft that performs at least 500 itinerant operations annually at the airport. Once an airport's critical aircraft is established, the airport's design criteria must be developed using the FAA coding system called the ARC. The critical aircraft at ESN is the Gulfstream IV. Therefore, ESN is identified on the current ALP (2009) as being in Approach Category D, Design Group II (D-II) for Runway 4-22. ESN is capable of regularly accommodating D-II aircraft with approach speeds between 141 knots and 165 knots, wing spans between 49 feet and 78 feet, and tail heights between 20 and 29 feet. Runway 15-33 is identified as being in Approach Category B, Design Group II (B-II), which means capable of regularly accommodating

approach speeds between 91 knots and 121 knots, wing spans between 49 feet and 78 feet, and tail heights less than 20 feet.

Runway Length

There are two runways at ESN: Runway 4-22 and Runway 15-33. Runway 4-22 serves as the primary runway and is 5,500 feet long and utilizes declared distances (see **Section 1.1.5**). Runway 15-33 is a crosswind runway and is 4,003 feet long. Runway 4 has a precision approach and Runway 22 has a non-precision approach. Runway 15-33 has visual approaches to both ends. Both runways have Medium Intensity Runway Lighting (MIRL). High Intensity Runway Lighting (HIRL) was installed on Runway 4-22 in spring 2008.

The current fleet mix at ESN includes medium-sized business jets, including the Gulfstream IV, Hawker 700/800, and Lear 60. The Master Plan Study, which was approved by the FAA in August 2006, completed a runway length analysis and calculated the recommended runway length required at ESN. As illustrated in **Appendix C** (referenced from Appendix C of the ESN Airport Layout Plan Update), many of the existing based aircraft and aircraft that frequently operate at ESN require a runway length in excess of 5,500 feet. Appendix C also contains letters from current business jet operators describing their current operating requirements for their aircraft to operate at 90 percent useful load as further justification. The runway length requirements for these aircraft range from approximately 6,030 feet for the Gulfstream IV to 6,900 feet for the Hawker 700, which results in a runway length deficiency of up to 1,400 feet. Applying declared distances, the ASDA and LDA for Runway 4 is deficient by 2,125 feet and the LDA for Runway 22 is deficient by 1,725 feet. The identified runway length deficiencies force existing based aircraft and current transient operators to depart ESN with less than optimal fuel and/or passenger loads. The Study concluded that a runway length of 6,900 feet be considered as the critical length requirement and be used as the basis for future primary planning at ESN.

Prior planning efforts recommended an extension to Runway 15-33; however, since the land acquisition required was deemed not viable, a recent planning effort focused on an extension to Runway 4-22 (see **Section 1.1.4**).

Object Free Area

As defined by FAA Advisory Circular 150/5300-13, an Object Free Area (OFA) is centered on the runway centerline and is clear of above ground objects protruding above the RSA edge elevation. The required OFA for Runway 4-22 and Runway 15-33 is 800 feet in width by 1,000 feet in length beyond the runway end. The Runway 22 OFA is 800 feet in width but only 350 feet in length beyond the runway end due to the location of the Airport perimeter fence, Old Centreville Road, and US Route 50 (see **Exhibit 1.2-1**). A MOS has been issued for this condition and is noted on the current ALP.

Runway Protection Zones

The function of a Runway Protection Zone a (RPZ), as defined in FAA Advisory Circular 150/5300-13, is to “enhance the protection of people and property on the ground.” An RPZ consists of two components: the central portion and the Controlled Activity Area. The central portion of the RPZ extends from the

beginning to the end of the RPZ, centered on the runway centerline. Its width is equal to the width of the Runway OFA. The Controlled Activity Area is the remainder of the RPZ that lies beyond and to the sides of the central portion.

RPZs are trapezoidal in shape and centered about the extended runway centerline. The dimensions of a RPZ are a function of the type of aircraft and approach visibility minima associated with that runway end. Runway 15-33, a Category B runway, has an approach minimum of not lower than 1 mile and therefore, has a RPZ with a length of 1,000 feet, inner width of 500 feet, and outer width of 700 feet. Runway 4-22, a Category D runway, has an approach minimum of not lower than ¾ mile, and therefore has a RPZ with a length of 1,700 feet, inner width of 1,000 feet, and outer width of 1,510 feet.

According to FAA Advisory Circular 150/5300-13 "it is desirable to clear all objects from the RPZ" although some uses are permitted provided they do not attract wildlife, are outside the runway OFA, and do not interfere with navigational aids (NAVAIDs). Examples of land uses prohibited within the RPZ include fuel storage facilities, places of public assembly (i.e., religious institutions, schools, hospitals, etc), and residences.

The FAA recommends that the sponsor have adequate control over interests in the RPZ, which in the Eastern Region has been interpreted in Fee Simple ownership of the RPZ extents. Currently, portions of the RPZ for Runway 22 fall outside of the Airport property (see **Exhibit 1.2-1**). A MOS has been issued for this condition and is noted on the current ALP. In addition, portions of the RPZ for Runway 15-33 fall outside of the Airport property (see **Exhibit 1.2-1**). To date, no MOS has been applied or issued for this non-standard condition.

Airspace and Controlled Surfaces

As described in 14 CFR Part 77, *Obstructions Affecting Navigable Airspace*, and FAA Advisory Circular 150/5300-13, surfaces are established in relation to an airport and each runway end in order to identify those objects that may affect airport planning and flight procedures. The size of the surfaces depends upon the type of approach planned for that runway (i.e., visual, non-precision instrument, and precision instrument). The five principal surfaces defined in 14 CFR Part 77 are as follows:

• **Primary surface**: a surface longitudinally centered on a runway that extends 200 feet beyond each end of the runway with a width of 500 feet for Runway 15-33, and 1,000 feet for Runway 4-22. Its elevation is the same as that of the runway centerline elevation at its closest point.

• **Approach surface**: a surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. The width and elevation of the inner ends conform to that of the primary surface; while the slope, length, and width of the outer end are governed by the runway service category and existing approach procedures. The approach surface for Runway 4 extends for a horizontal distance of 10,000 feet at a slope of 50:1 and an additional 40,000 feet at a slope of 40:1. The Runway 4 approach has an outer width of 16,000 feet. The remaining three approaches for

Runways 22, 15 and 33 all extend out for a horizontal distance of 10,000 feet at a slope of 34:1 and have an outer width of 3,500 feet.

● **Transitional surface**: a surface that extends outward and upward at right angles to the runway centerline and the runway centerline extended at a slope of 7:1 from the sides of the primary surface and from the sides of the approach surfaces. Transitional surfaces for those portions of the precision approach surface which project through and beyond the limits of the conical surface, extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at right angles to the runway centerline.

● **Horizontal surface**: a horizontal, rounded shaped area situated 150 feet above the established airport elevation, which is currently 72 feet MSL at ESN. Its dimensions are determined by swinging 10,000-foot arcs from a point centered 200 feet beyond each runway end of Runways 4-22 and 15-33, which are then connected by a line tangent to those arcs.

● **Conical surface**: a surface that extends outward and upward from the periphery of the horizontal surface at a slope of 20:1 vertical for horizontal distances of 4,000 feet. ESN's conical surface extends up to an elevation of 350 feet above the established Airport elevation.

There are numerous penetrations to the existing 14 CFR Part 77 imaginary surfaces for both Runway 15-33 and Runway 4-22 (see **Exhibit 1.2-2**).

CFR 14 Part 77 Roadway Clearance Requirements

Except for traverse ways on or near an airport with an operative ground traffic control service furnished by an ATCT or by the airport management and coordinated with the air traffic control service, the standards listed below apply to traverse ways used or to be used for the passage of mobile objects only after the heights of these traverse ways are increased by:

(1) 17 feet for an Interstate Highway that is part of the National System of Military and Interstate Highways where over crossings are designed for a minimum of 17 feet vertical distance.

(2) 15 feet for any other public roadway.

(3) 10 feet or the height of the highest mobile object that would normally traverse the road, whichever is greater, for a private road.

(4) 23 feet for a railroad, and,

(5) For a waterway or any other traverse way not previously mentioned, an amount equal to the height of the highest mobile object that would normally traverse it.

Currently, the primary surface of the Runway 22 end extends off Airport property and encroaches onto Centreville Road. Also the existing approach surface to Runway 22 does not clear Old Centreville Road or US Route 50 by the required 15 feet; therefore, both roads are currently penetrations to the existing 14 CFR Part 77 imaginary surfaces (see **Exhibit 1.2-2**).

1.2.2 EXISTING LANDSIDE FACILITY DEFICIENCIES

Landside facilities at ESN consist of aircraft storage and parking areas, vehicle parking and associated access roads, and terminal facilities. Of the landside facilities at ESN, the aircraft storage and parking areas are currently deficient.

There are three separate types of aircraft storage currently available at ESN: conventional hangars; T-hangars; and tie-downs. The first type, conventional hangars, is a clear-span hangar ranging in width and depth from approximately 50 feet by 60 feet up to approximately 120 feet by 200 feet. Conventional hangars can typically store multiple small aircraft or one to two larger jet aircraft. Generally speaking, corporate users prefer to house their aircraft in a conventional hangar. There are currently 12 conventional hangars in use at ESN with 2 additional hangars currently being constructed (2010).

The second type of aircraft storage available at ESN is a T-hangar. T-hangars provide storage to aircraft generally no larger than a light twin-engine. The T-hangars at ESN are nested and range from an 8-unit building up to a 12-unit building. There are currently 90 T-hangars at ESN.

The third aircraft storage option available at ESN is the aircraft tie-down. A typical aircraft tie-down provides a three-point tie-down for the aircraft with no protection from the elements. There are currently approximately 72 tie-downs available at ESN. However, as part of the current South Apron project, several tie-down spaces will be lost with bringing the Apron into compliance with Group II standards. Note: The tie-down configuration for the reconstructed South Apron is currently being designed.

There is currently a waiting list of 64 aircraft owners who have expressed interest in storing their aircraft at ESN in T-hangars and 4 aircraft owners who have expressed interest in conventional hangars; however there is currently no T-hangar space available for their aircraft and only two areas on the Southwest Apron currently available for conventional hangars. As shown by the aviation demand forecast in the Master Plan Update and the waiting list of aircraft owners, there is currently a significant hangar deficiency at ESN.

1.2.3 EXISTING SUPPORT FACILITY DEFICIENCIES

Support facilities at ESN consist of FBOs, fuel storage facilities, and ground support equipment storage and associated airfield access. Of the support facilities at ESN, the only one that is deficient at this time involves support vehicle access to the airfield.

ESN does not currently have an airfield service road for its maintenance activities. In the existing condition, maintenance vehicles operate on taxiways and/or grassed areas to access necessary locations on the airfield. Occasionally, maintenance vehicles must cross active runways in order to reach the other side of the airfield, which is not an ideal operational scenario. Due to the potential operational issues, a full service road is necessary at ESN to provide maintenance access to the airfield without crossing active runways.

1.3 PURPOSE AND NEED FOR THE PROPOSED IMPROVEMENTS

The purposes of the proposed actions are to accomplish those tasks that would allow ESN to continue to operate in a safe and efficient manner, to meet FAA design criteria, and to achieve its airside and landside goals. Within the near term, the priority areas that need to be addressed involve a runway extension to serve the existing and forecasted fleet mix, OFA enhancements for Runway 4-22, acquisition of property interests for existing RPZs, removal of obstructions to the existing 14 CFR FAR Part 77 surfaces, expansion of the aircraft storage capacity, and construction of an Airport Service Road to provide maintenance access to the airfield.

Based on the information presented in this section, the proposed actions are needed for the following reasons:

- The current primary runway length is not adequate to serve the existing and forecast fleet operating at ESN.
- The OFA for Runway 22 is substandard to FAA requirements.
- The Airport does not own portions of the existing RPZs of Runway 15, 33, and 22.
- There are several existing penetrations to the 14 CFR Part 77 surfaces to Runway 4-22 and Runway 15-33.
- ESN does not have adequate storage available to accommodate the waiting lists for T-hangar units and conventional hangars.
- There is currently not an Airport Service Road.

1.4 REQUESTED FEDERAL ACTION

This EA, which was prepared for the FAA and Talbot County, presents the evaluation of impacts on the environment and provides a detailed review of the proposed development as required by FAA Order 5050.4B. Appropriate Federal actions will be documented in an environmental finding that the FAA will prepare before it makes a decision on the proposed projects under its specific purviews, or consideration of funding for the proposed projects. This EA is being submitted in accordance with the CEQ's *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act.* If a Finding of No Significant Impact (FONSI) is granted form the FAA, Federal financial participation for the design and construction of the proposed projects will be requested.